

How industry can leverage CSIR platforms for innovation

Industry Associations Innovation Day 2018

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Kobus Roux



Contextual considerations

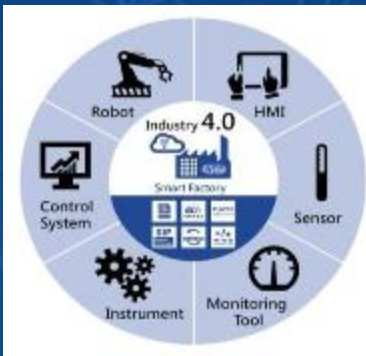


Human capital

- **National:** Need for job creation against a changing production environment (manual vs automated, augmentation, service industry growth vs manufacturing industry decline)

Financial environment

- **Slow SA economic growth:** Decreasing investment in R&D
- **Continued de-industrialisation:** Opportunity to increase economic growth through innovation-led industrialisation
- **African economy:** Opportunity for SA to be the (innovation) leader in the African “renaissance”



Technology landscape

- **New industrial paradigm (Industry 4.0):** Digital integration, sensor fusion, decentralisation, increased opportunities and prevalence of smaller companies and tech-based SMMEs
- **DST’s new White Paper on Science and Technology:** Increased focus on innovation environment

Our mandate

CSIR MANDATE

“The objects of the CSIR are, through **directed** and **particularly multi-disciplinary research** and **technological innovation**, to foster, in the national interest and in fields which in its opinion should receive preference, **industrial** and **scientific development**, either by itself or in **co-operation with principals** from the **private** or **public sectors**, and thereby to contribute to the **improvement of the quality of life** of the people of the Republic, and to perform any other functions that may be assigned to the CSIR by or under this Act.”

(Scientific Research Council Act 46 of 1988, amended by Act 71 of 1990)

Mandate unpacked



- Better utilisation of the resources of the republic



- Improvement of the productive capacity of its population



- Improvement of technical processes and methods to improve industrial production



- The promotion and expansion of existing, as well as the establishment of new industries



- Standardisation in industry and commerce



- Fostering and training of manpower

Current approaches to industry



Technology licensing and start-up creation



Access to infrastructure, skills; tech incubation



Innovation in support of industries in decline



Improvement of industry competitiveness



New industry creation



Technology localisation and supplier development



Community-based enterprise creation

What we wish to achieve; a consolidated, strengthened offering representing a value proposition that is relevant to the competitiveness of the South African economy

Reflections on current initiatives



Market perspective

- Mostly technology push, an element of market pull from small businesses and individual enterprises
- Supported by government programmes or strategic investments of parliamentary grant
- Limited but growing industry player involvement, however industrial efficiency programmes have industry partners (NCPC)



Scale

- Limited scale and footprint (in Gauteng, 1 in KZN)
- Limited access by entrepreneurs
- Pilot capabilities in a few areas
- Balance of SMMEs and big business involvement



Impact

- Scale of operations can only have limited impact in terms of:
 - Level of industry operations
 - Jobs created
 - Companies supported or created

CSIR Industrial Development Strategy: Amplifying the 'I' in CSIR



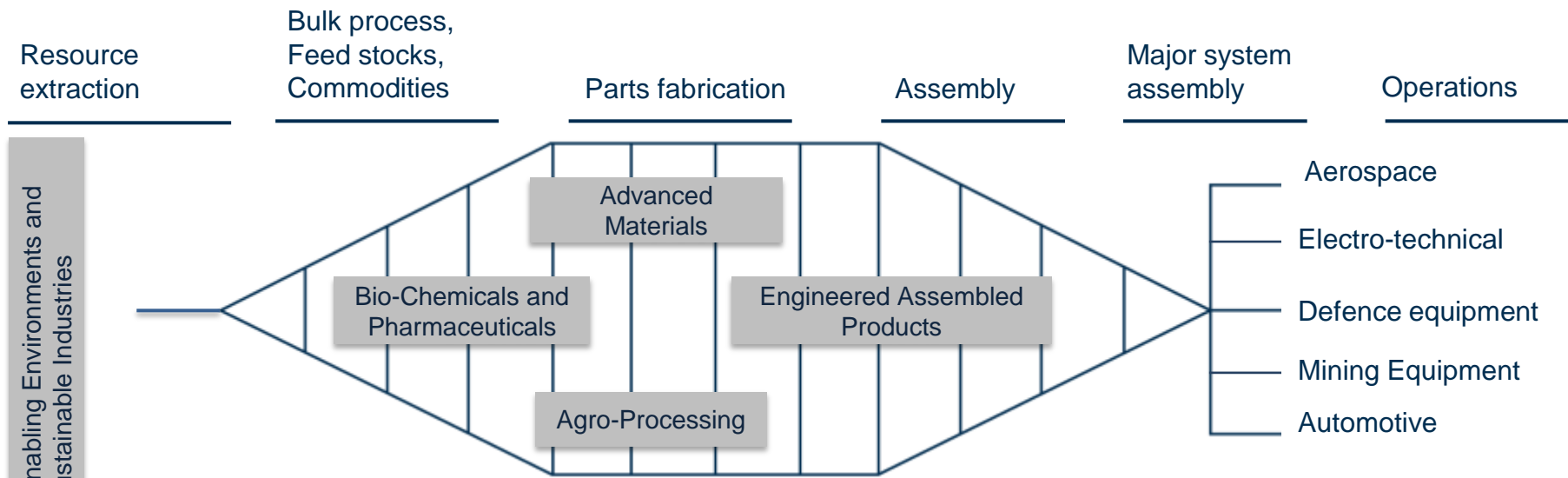
The nerve connection...

....connecting innovation and economic competitiveness

Strategic capabilities approach



South Africa is participating in high-value global value chains



Smart Places: Enabling Environments and Hubs for Sustainable Industries

Supporting capabilities

- | | | | |
|--|--|--|---|
| <p>Product innovation</p> <ul style="list-style-type: none"> • Product design • Concurrent engineering • Product Lifecycle Management • DfX (X=safety, reliability, etc.) | <p>Manufacturing process</p> <ul style="list-style-type: none"> • Forming technology • Joining technology • Machining technology • Surface technology | <p>Manufacturing automation</p> <ul style="list-style-type: none"> • Mechatronics • Precision measurement | <p>Manufacturing systems</p> <ul style="list-style-type: none"> • Manufacturing execution and control • Planning and operations management |
|--|--|--|---|

Digital Integration, AI, Data Fusion/Big Data, Cybersecurity



Key priorities 2018/19: Fostering industrial development



Fourth Industrial Revolution Centre

- Assist South African industry with adoption of new integrated digital and advanced manufacturing technologies
- Host demonstration facilities, learning factories, PLM platform, digital lab, centralised technologies platform

Explore new innovation platforms

- Engineered products capability
- Pharmaceuticals industry support
- Advanced materials



Strengthen existing innovation programmes

- Support and growth of IIP platforms: nanomaterials, biomanufacturing, photonics, biorefinery, nano-micro manufacturing
- Continued support for industry support platforms: Technology Localisation, Enterprise Creation for Development, National Cleaner Production Centre



What we want to achieve: A virtuous cycle

- New capabilities to drive industrial development
- New capabilities to support a capable state
- New technologies and prototypes

Scientific and technological development

How do we create this virtuous cycle?

Industrial development

Industry and societal requirements and business intelligence informing new areas of R&D, new skills, market and technology foresight capabilities

Thank you!